Claims

1.   Method for loading of program data for a graphical user interface for
      operation and/or for diagnosis of a printer or copier,

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      in which first data are stored in a first storage region (38) of a first data
      processing unit (16) of a printer (12) or copier,

      the first data are transferred from the first data processing unit (16) to a
10   second data processing unit (18, 26) of an operating unit, whereby the first
      data contain at least specifications about at least one program module
      necessary for generation of operating and/or diagnosis functions,

      with the help of the second data processing unit (18, 26), it is checked
15   whether second data that contain the program module are contained in a
      second storage region (86) of the second data processing unit (18, 26),

      the version state of the program module stored as second data in the second
      storage region (86) is compared with the version state of the necessary
20   program module,

      given non-existent second data in the second storage region (86) and given
      inconsistent version states, the second data are transferred from a third
      storage region (40) of the first data processing unit (16) to the second data
25   processing unit (18, 26),

      and in which instructions of the program module are executed by the
      second data processing unit (18, 26).

2.   Method according to claim 1, characterized in that the second data contained in the second storage region is stored and read out independent of a network address of a data processing unit.

5   3.   Method according to claim 1 or 2, characterized in that data of a plurality of program modules are contained in the second storage region (86) that are loaded and executed independent of a network address of the first data processing unit (16) of the second data processing unit (18, 26).

10   4.   Method according to any of the preceding claims, characterized in that the version state of the program mode stored as second data in the second storage region (86) is compared with the version state of a necessary program module before the transfer of the second data and/or before the loading of the second data.

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5.   Method according to any of the preceding claims, characterized in that the second storage region (86) is a storage region of a fixed disc storage and/or of an exchangeable data medium.

20   6.   Method according to any of the preceding claims, characterized in that the first data contain at least the printer type and/or the output state of the printer (12) or copier.

7.   Method according to any of the preceding claims, characterized in that a
25   plurality of program modules are stored in the second storage region (86), whereby a program module is selected with the aid of the first data.

8.   Method according to any of the preceding claims, characterized in that the first data contain a program module with whose execution further first data
30   and second data are loaded, whereby the first data contain a program module for communication control between first and second data

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processing unit, a program module for provision of operating and/or diagnosis functions, whereby the first data are contained in at least one file.

9.   Method according to claim 8, characterized in that the first and/or second data contain a Java applet or an ActiveX program element.

10.   Method according to any of the preceding claims, characterized in that the operating unit (18, 26) is a service and maintenance computer.

11.   Method according to any of the preceding claims, characterized in that the first data processing unit (16) is connected with the second data processing unit (18) over a remote data transfer connection (28, 30).

12.   Method according to claim 11, characterized in that the remote data transfer connection is a point-to-point connection, in particular an ISDN data connection, a connection with the aid of a local area network or a connection with the aid of a wide area network.

13.   Method according to any of the preceding claims, characterized in that the first and/or second data contain a primary loader program, printer-specific information, program modules for an RMI communication, program modules for implementation of an authentication, program modules for generation of a graphical user interface, program modules for access to a databank of the printer or copier, program modules for diagnosis of a paper input unit, a paper path controller, a paper output unit or a printing unit, program modules for access to an event registration and/or program modules for access to an error storage.

14.   Method according to any of the preceding claims, characterized in that the first and/or second data contain Java applications that are transferred with

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the aid of a Java Web Start technology to the second data processing unit (18, 26) and executed by this.

15.   Method according to any of the preceding claims, characterized in that the
5   second data contain program elements for adjustment of parameters, counter values, counter limit values, voltage levels to be set, status information as well as program elements for implementation of light barrier routines, motor test routines and valve routines.

10   16.   System for operation and/or for diagnosis of a printer or copier with the aid of a graphical user interface,

with a first data processing unit (16) of the printer (12) or copier that is connected via a data line with a second data processing unit (18, 26) of an
15   operating unit,

in which first data can be transferred from the first data processing unit (16) to a second data processing unit (18, 26), which first data contain at least specifications about at least one program module necessary for generation
20   of operating and/or diagnosis functions,

the second data processing unit (18, 26) checks whether second data that contain the program module are contained in a second storage region (86) of the second data processing unit (18, 26),
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the second data processing unit (18, 26) compares the version state of the program module stored as second data in the second storage region (86) with the version state of the necessary program module,

30   given non-existent second data in the second storage region (86) and given inconsistent version states, the second data can be transferred from a third

storage region (40) of the first data processing unit (16) to the second data processing unit (18, 26),

and in which the second data processing unit (18, 26) executes instructions
5   of the program module.

17.   System according to claim 16, characterized in that the second data can be stored in the second storage region (86) after the transfer.

10   18.   Method for generation of a graphical user interface for a printing or copying system,

in which first data of a graphical user interface are stored in a storage region (38) of a first data processing unit (16, 36) of the printing or copying
15   system (12),

the first data are transferred to a second data processing unit (18, 26) of an operating unit that is connected via a data line with the first data processing unit (16, 36),

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the first data are processed by the second data processing unit (18, 26),

the second data processing unit (18, 26) executes a display program module (32) that processes the first data,

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second data that are transferred to the second data processing unit (18, 26) are stored in a second storage region (40) of the first data processing unit, whereby at least the second data are transferred with the aid of a Remote Method Invocation communication,

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instructions of a Simple Network Management Protocol are transferred
with the aid of the Remote Method Invocation communication,

and in which the second data are processed by the second data processing
unit (18, 26), whereby at least one operating function and/or diagnosis
function is provided for operation or, respectively, for diagnosis of the
printing or copying system (12).

19.   Method according to claim 18, characterized in that the first data contain at
least page description information for generation of the graphical user
interface, in particular a hypertext.

20.   Method according to claim 18 or 19, characterized in that the first data
contain graphic elements for generation of the graphical user interface.

21.   Method according to any of the claims 18 through 20, characterized in that
the first data have been generated with the aid of a Hypertext Markup
Language and/or with the aid of the programming language Java.

22.   Method according to any of the claims 18 through 21, characterized in that
the display program module (32) is a browser program module for display
of a graphical user interface with the aid of data contained in hypertexts
and/or of data contained in program data for generation of a graphical user
interface.

23.   Method according to any of the claims 18 through 22, characterized in that
the program elements contained in the second data are stored in archives,
whereby the program elements comprise class data, Java applets and/or
ActiveX program elements that are processed by the display program
module, whereby functions of the graphical user interface are realized for

operation, for configuration and/or for diagnosis of the printing or copying system (12).

24. Method according to any of the claims 18 through 23, characterized in that the data connection between the first data processing unit (16, 36) and the second data processing unit (18, 26) is a network connection (24).

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25. Method according to claim 24, characterized in that the network connection (24) occurs with the aid of a Local Network Connection.

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26. Method according to any of the claims 18 through 25, characterized in that the operating unit is a service and maintenance computer for diagnosis, maintenance and parameter adjustment of the printing or copying system (12).

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27. Method according to any of the claims 18 through 26, characterized in that the first data and/or the second data are transferred from the first data processing unit (16) to the second data processing unit (18, 26) with the aid of a hypertext transfer protocol, and that the first and/or second storage region (38, 40) is associated with an HTTP server (36) of the first data processing unit (16), and that the second data are transferred from the first data processing unit (16) to the second data processing unit (18, 26) in an operator control action for invocation of the operating, configuration and/or diagnosis function.

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28. Method according to any of the claims 18 through 27, characterized in that the display program (32) contains a Java runtime program environment (34).

29. Method according to any of the claims 18 through 28, characterized in that third data are transferred from the first data processing unit (16) to the second data processing unit (18, 26).

5   30. Method according to claim 29, characterized in that the third data are transferred with the aid of a file transfer protocol.

31. Method according to any of the claims 29 or 30, characterized in that the third data contain error data and diagnosis programs.

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32. Method according to any of the claims 18 through 31, characterized in that the second data processing unit (18, 26) is connected with the first data processing unit (16) via a wide area network.

15   33. Method according to any of the claims 18 through 32, characterized in that, before the transfer of the first and/or second data, it is checked whether the second data processing unit (18, 26) is authorized to receive and/or to send the data, and that the authenticity of the second data processing unit (18, 26) is checked by the first and/or second data processing unit (16, 18) with

20   the aid of an authentication procedure.

34. System for generation of a graphical user interface for a printing or copying system

25   with a first data processing unit (16, 36) of the printing or copying system (12) that contains a first storage region (38) in which are stored first data for generation of a graphical user interface,

in which the first data can be transferred to a second data processing unit

30   (18, 26) of an operating unit, whereby the second data processing unit (18, 26) is connected with the first data processing unit (16, 36) via a data line,

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the second data processing unit (18, 26) processes the first data with the aid of a display program module (32),

5   second data that contain program elements and that are transferred to the second data processing unit (18, 26) over the data line with the aid of a Remote Method Invocation communication are stored in a second storage region (40) of the first data processing unit (16, 36),

10   instructions of e [sic] Simple Network Management Protocol can be transferred with the aid of the Remote Method Invocation communication,

and in which the second data processing unit (18, 26) processes the second data and provides at least one operating and/or diagnosis function for
15   operation or, respectively, for diagnosis of the printing or copying system (12).